

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An illumination module for transmitting radiation from a radiation source to the interior of a vessel, said module comprising:

a mounting member including a leading end, a trailing end, an outer surface connecting said leading and trailing ends, a passage extending through said mounting member from said leading end to said trailing end, said passage in fluid communication with the interior of the vessel, and a guide hole extending through said mounting member from said outer surface to said passage for communication with said passage; and

a radiation guide having a radiation entry end for communication with said radiation source and a radiation exit end, said radiation guide being arranged to extend from said radiation entry end through said guide hole into said passage and along said passage in the direction of said leading end, said radiation guide terminating at said radiation exit end.

Claim 2 (original): The illumination module according to claim 1, wherein the cross-sectional area of said passage that is unblocked by said radiation guide is greater than the cross-sectional area of said passage that is blocked by said radiation guide to facilitate viewing through said passage.

Claim 3 (original): The illumination module according to claim 1, wherein there is a plurality of said guide holes and a plurality of corresponding radiation guides.

Claim 4 (original): The illumination module according to claim 3, wherein the cross-sectional area of said passage that is unblocked by said plurality of radiation guides is greater than the cross-sectional area of said passage that is blocked by said plurality of radiation guides to facilitate viewing through said passage.

Claim 5 (original): The illumination module according to claim 1, wherein said leading end

and said trailing end of said mounting member are planar surfaces parallel to one another.

Claim 6 (original): The illumination module according to claim 1, wherein said radiation guide includes a housing, and said radiation exit end of said radiation guide includes a glass window fused to said housing.

Claim 7 (original): The illumination module according to claim 6, wherein said mounting member and said housing include a fine flow duct system communicating with at least one spray port directed at said fused glass window, whereby fluid is delivered for cleaning said fused glass window.

Claim 8 (currently amended): An illumination and viewing assembly for transmitting radiation to the interior of a vessel comprising:

- a mounting member including a leading end, a trailing end, an outer surface connecting said leading and trailing ends, a passage extending through said mounting member from said leading end to said trailing end, said passage in fluid communication with the interior of the vessel, and a guide hole extending through said mounting member from said outer surface to said passage for communication with said passage;

- a radiation guide having a radiation entry end and a radiation exit end, said radiation guide being arranged to extend from said radiation entry through said guide hole into said passage and along said passage in the direction of said leading end, said radiation guide terminating at said radiation exit end;

- a radiation source connected to said radiation entry end; and

- a sight glass in sealed adjacency to said trailing end of said mounting member and in alignment with said passage.

Claim 9 (original): The assembly according to claim 8, wherein the cross-sectional area of said sight glass that is unblocked by said radiation guide is greater than the cross-sectional area of said sight glass that is blocked by said radiation guide to facilitate viewing through said sight glass.

Claim 10 (original): The assembly according to claim 8, wherein there is a plurality of said guide holes and plurality of corresponding radiation guides.

Claim 11 (original): The assembly according to claim 10, wherein the cross-sectional area of sight glass that is unblocked by said plurality of radiation guides is greater than the cross-sectional area of said light that is blocked by said plurality of radiation guides to facilitate viewing through said sight glass.

Claim 12 (original): The assembly according to claim 8, wherein said leading end and said trailing end of said mounting member are planar surfaces parallel to one another.

Claim 13 (original): The assembly according to claim 8, wherein said sight glass is clamped toward said trailing surface of said mounting member.

Claim 14 (original): The assembly according to claim 8, wherein said mounting member includes a coarse flow duct system communicating with at least one spray port directed at said sight glass, whereby fluid is delivered for cleaning said sight glass.

Claim 15 (original): The assembly according to claim 8, wherein said radiation guide includes a housing, and said exit end of said radiation guide includes a glass window fused to said housing.

Claim 16 (original): The assembly according to claim 15, wherein said mounting member and said housing include a fine flow duct system communicating with at least one spray port directed at said fused glass window, whereby fluid is delivered for cleaning said fused glass window.

Claim 17 (currently amended): An illumination and viewing assembly for transmitting radiation to the interior of a vessel comprising:

a mounting member including a leading end, a trailing end, an outer surface connecting said leading and trailing ends, a passage extending through said mounting member from said leading end to trailing end, said passage in fluid communication with the interior of the vessel,

and a guide hole extending through said mounting member from said outer surface to said passage for communication with said passage;

a radiation guide having a radiation entry end and a radiation exit end, said radiation guide being arranged to extend from said radiation entry end through said guide hole into said passage and along said passage in the direction of said leading end, said radiation guide terminating at said radiation exit end;

a radiation source connected to said radiation entry end; and

a radiation detection unit in sealed adjacency to said trailing end of said mounting member, said radiation detection unit having a field of view through a cross-sectional area of said passage that is unblocked by said radiation guide.

Claim 18 (original): The assembly according to claim 17, wherein there is a plurality of said guide holes and a plurality of corresponding radiation guides.

Claim 19 (original): The assembly according to claim 17, wherein said leading end and said trailing end of said mounting member are planar surfaces parallel with one another.

Claim 20 (previously presented): The assembly according to claim 17, wherein said radiation detection unit is clamped toward said trailing end of said mounting member.

Claim 21 (previously presented): The assembly according to claim 17, wherein said mounting member includes a coarse flow duct system communicating through said mounting member to at least one spray port directed at a lens of said radiation detection unit, whereby fluid is delivered for cleaning said lens.

Claim 22 (original): The assembly according to claim 17, wherein said radiation guide includes a housing, and said radiation exit end of said radiation guide includes a glass window fused to said housing.

Claim 23 (original): The assembly according to claim 24, wherein said mounting member and said housing include a fine flow duct system communicating with at least one spray port directed at said fused glass window, whereby fluid is delivered for cleaning said fused glass window.

Claim 24 (previously presented): The illumination module according to claim 1, wherein the vessel includes a process pipeline.

Claim 25 (previously presented): The illumination module according to claim 8, wherein the vessel includes a process pipeline.

Claim 26 (previously presented): The illumination module according to claim 17, wherein the vessel includes a process pipeline.